



CONSEILS ET  
ÉTUDES EN  
ARCHITECTURE  
DURABLE

MATERIALS TOOL

**USAGE INSTRUCTIONS**

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**MATRIciel sa - CONSEILS ET ÉTUDES EN  
ARCHITECTURE DURABLE**

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**TABLE OF CONTENTS**

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1	OBJECTIVE .....	3
1.1	THE 'MATERIALS' SECTION .....	3
2	HOW THE TOOL WORKS .....	3
2.1	QUESTIONS NEEDING TO BE ANSWERED .....	3
2.2	ANSWERING THE QUESTIONS .....	4
2.3	ENTERING DATA .....	6
3	COLLECTING THE NECESSARY INFORMATION PRIOR TO DATA ENTRY .....	6
3.1	WHAT INFORMATION NEEDS TO BE COLLECTED PRIOR TO DATA ENTRY? .....	6
4	CONTACT .....	7

# 1 OBJECTIVE

## 1.1 THE 'MATERIALS' SECTION

The objective of the "MATERIALS" tool is to identify the performance level of a company's building, and the plot of land and the business park on which it is located, with regard to the choice of materials and/or construction techniques.

The construction materials used all have some form of impact on the environment and on health. The well-considered choice of materials and construction products before a construction or refurbishment project is actually started allows us to reduce their impact on the environment and the future users of the premises.

**If your building / business park is already built** → the primary objective of your analysis will be to establish how well your building / business park scores in relation to current performance standards and with a view to short-, middle- and long-term improvements (e.g. repairs / major refurbishment work / extensions)

**If your building / business park has not yet been built** → the primary objective of your analysis will be to establish how well your building / business park scores in relation to current performance standards and with a view to changing plans in line with available construction options.

# 2 INSTRUCTIONS FOR USING THE TOOL

## 2.1 QUESTIONS NEEDING TO BE ANSWERED

The tool is divided up into three sections, each representing a scale of analysis: 1 - the company's building / 2 - the plot on which the company's building is located (the "company plot") / 3 - the business park on which the company plot is located

Each scale of analysis consists of different subjects, listed under A, B, C ....

ON THE SCALE OF THE COMPANY'S BUILDING				
RELEVANCE		SUBJECT		TARGET 1
New	Existing	A	BUILDING CYCLE	
		A1	Construction principles & development	
			Subject	<b>Prefabrication of the building's structure</b> <span style="float: right;"><b>TARGET 1</b></span>
			General question	Does the building's main structure (load-bearing structure / façade / roof / foundation slab) consist mainly of <b>prefabricated elements</b> assembled on site, thereby rationalising construction, reducing the transportation impact, keeping track of waste production and management, and reducing overall construction time? <span style="float: right;">+ 10% of the surface area of the structural shell (including the foundation slab) is made of prefabricated elements</span>
✓	✓	A1.1	Questionnaire	A1.1.a Is the building made of a <b>pre-fabricated load-bearing structure</b> ?
				A1.1.b Does the building have a <b>pre-fabricated foundation slab</b> ? Ratio in m <sup>2</sup> Does the building have a <b>pre-fabricated floor slabs</b> ? Ratio in m <sup>2</sup> Does the building have a <b>pre-fabricated façade</b> ? Ratio in m <sup>2</sup>
				A1.1.c
				A1.1.d
				A1.1.e Does the building have a <b>pre-fabricated roof</b> ? Ratio in m <sup>2</sup>
				A1.1.f What is the total surface area of the building's shell? Ratio in m <sup>2</sup>

For each subject, different sub-topics (A1, A2, A3, etc.) are identified.

ON THE SCALE OF THE COMPANY BUILDING				
RELEVANCE		SUBJECT		TARGET 1
New	Existing	A	BUILDING CYCLE	
		A1	Construction principles & development	
			Subject	<b>Prefabrication of the building's main structure</b> <span style="float: right;"><b>TARGET 1</b></span>
			General question	Does the building's main structure (load-bearing structure / façade / roof / foundation slab) consist mainly of <b>prefabricated elements</b> assembled on site, thereby rationalising construction, reducing the transportation impact, keeping track of waste production and management, and reducing overall construction time? <span style="float: right;">+ 10% of the surface area of the structural shell (including the foundation slab) is made of prefabricated elements</span>
✓	✓	A1.1	Questionnaire	A1.1.a Is the building made of a <b>pre-fabricated load-bearing structure</b> ?
				A1.1.b Does the building have a <b>pre-fabricated foundation slab</b> ? Ratio in m <sup>2</sup> Does the building have a <b>pre-fabricated floor slabs</b> ? Ratio in m <sup>2</sup> Does the building have a <b>pre-fabricated façade</b> ? Ratio in m <sup>2</sup>
				A1.1.c
				A1.1.d
				A1.1.e Does the building have a <b>pre-fabricated roof</b> ? Ratio in m <sup>2</sup> What is the total surface area of the building's shell? Ratio in m <sup>2</sup>
				A1.1.f

For each sub-topic there is a "General question" (A.1.1, A.1.2, etc.) helping the user to find out the topic's overall objective. To provide a reply to this general question, a series of ensuing questions (A1.1a, A1.1b, A1.1c) are listed → Users MUST ONLY answer this list of questions.

ON THE SCALE OF THE COMPANY BUILDING					
RELEVANCE		SUBJECT			TARGET 1
New	Existing	A	BUILDING CYCLE		
		A1	Construction principles & development		
			Subject	<b>Prefabrication of the building's structure</b>	
			General question	Does the <b>building's main structure</b> (load-bearing structure / façade / roof / foundation slab) consist mainly of <b>prefabricated elements</b> assembled on site, thereby rationalising construction, reducing the transportation impact, keeping track of <b>waste production and management</b> , and reducing overall construction time? <b>TARGET 1</b>	
✓	✓	A1.1	Questionnaire	A1.1.a Is the building made of a <b>pre-fabricated load-bearing structure</b> ? A1.1.b Does the building have a <b>pre-fabricated foundation slab</b> ? Ratio in m <sup>2</sup> Does the building have a <b>pre-fabricated floor slabs</b> ? Ratio in m <sup>2</sup> Does the building have a <b>pre-fabricated façade</b> ? Ratio in m <sup>2</sup> A1.1.c A1.1.d A1.1.e Does the building have a <b>pre-fabricated roof</b> ? Ratio in m <sup>2</sup> A1.1.f What is the total surface area of the building's shell? Ratio in m <sup>2</sup>	

## 2.2 ANSWERING THE QUESTIONS

The principle is to provide answers to the clearly formulated questions. Most answers are in a **YES / NO** form (see the associated drop-down menus). In certain cases, **surface area ratios** must also be entered.

There are also other responses in the form "**YES > 25%, YES > 50%, YES > 75%, NO**". These are directly linked to previously entered base data (surface areas) - cf. section 3.1 of these usage instructions). For these specific answers, surface area ratios are not entered.

→ The respective drop-down menu is to be found opposite each question in the right-hand cell - Please note: ONLY the YELLOW CELLS are to be entered. All information entered is automatically processed by the programme to provide an overall assessment of TARGET achievement.

YES	300.00 m <sup>2</sup>	300.00 m <sup>2</sup>	300.00 m <sup>2</sup>	300.00 m <sup>2</sup>	
please select		/	/	/	
please select		/	/	/	
please select		/	/	/	
please select		/	/	/	
please select		/	/	/	
please select		/	/	/	
please select		/	/	/	
please select	50,0	/	/	/	
please select		/	/	/	
please select					
		Cond 1	Cond 2	Cond 3	TARGET
500.00 m <sup>2</sup>		/	/	/	/
Remaining surface area		Life time	Maintenance	facilities	

The GREEN summary cells show the result of the assessment of the entered data and are used for defining the level of TARGET achievement.

FOR YOUR INFORMATION: 4 TARGET levels are defined for each subject (1 → 4) - the 'performance levels' required for achieving each TARGET are clearly identified.

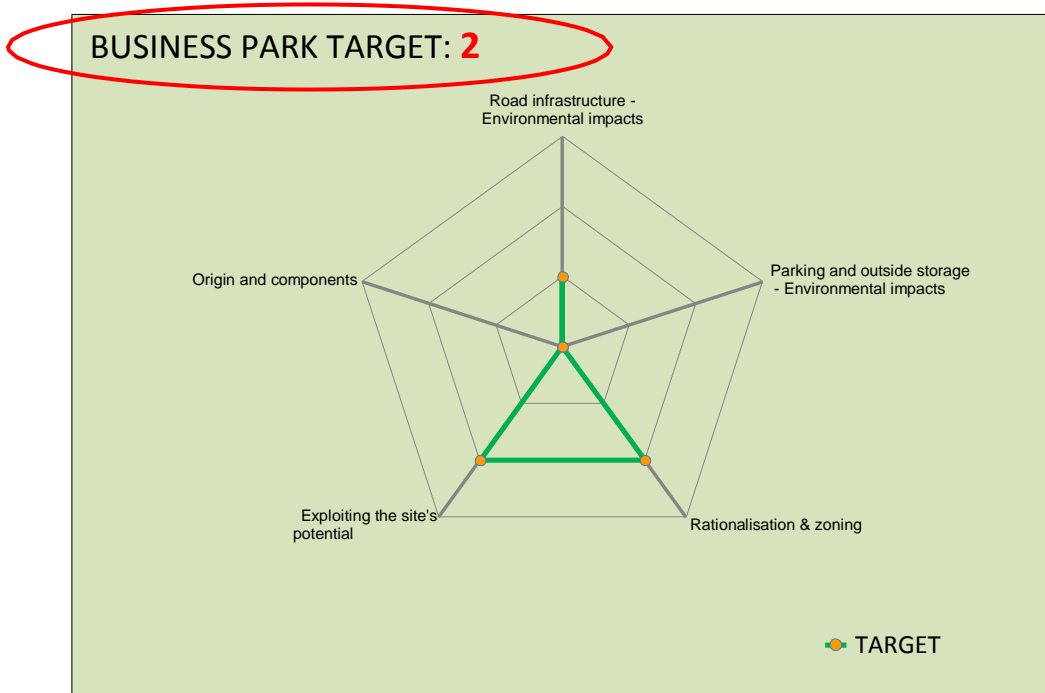
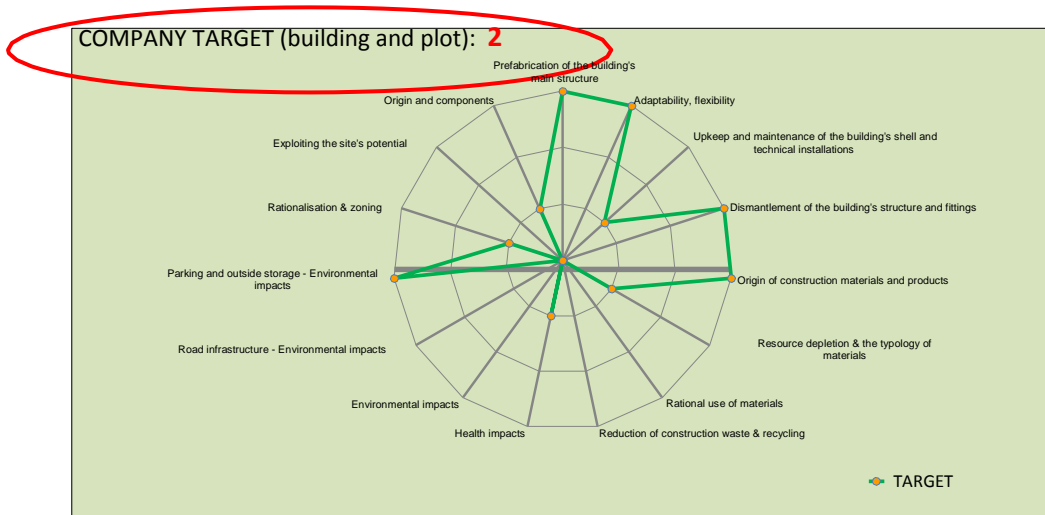
TARGET 1	TARGET 2	TARGET 3	TARGET 4
+ 10% of the surface area of the structural shell (including the foundation slab) is made of prefabricated elements	+ 30% of the surface area of the structural shell (including the foundation slab) is made of prefabricated elements	the load-bearing structure AND + 60% of the surface area of the structural shell (including the foundation slab) are made of prefabricated elements	the load-bearing structure AND + 90% of the surface area of the structural shell (including the foundation slab) are made of prefabricated elements

After having answered all questions, you will obtain a TARGET achievement level for each subject (A, B, C, etc.) TARGET level 4 is the highest, TARGET level 1 the lowest. Two summary charts show the level of target achievement for each assessment level and for each subject entered.

Two charts are available:

- ▶ **Chart 1 - Company:** this summarises the assessment of the data entered for the company building and plot of land on which the building stands.
- ▶ **Chart 2 - Business park:** this summarises the assessment of the data entered for the business park as a whole.

An OVERALL TARGET is provided for assessment scales "1 - Company building" and "2 = Company plot"



### 2.3 ENTERING DATA

→ **1: Identify and collect the required information beforehand**

(cf: Section 3: Collecting the necessary information prior to data entry)

→ **2: Enter the collected data into the associated tables**

(cf: Section 3: Collecting the necessary information prior to data entry)

→ **3: Answer the questions in each section using the drop-down menus and, wherever necessary, entering surface area ratios**

PLEASE REMEMBER:

- ▶ Only enter data in the reserved CELLS (YELLOW cells and the PINK cells which appear dynamically for entering surface areas)

PLEASE NOTE:

- ▶ when entering surface areas, take care not to exceed the total surface area already entered: e.g. if the surface area of a façade's components exceeds the surface area of the façade itself, an error message will appear.
- ▶ No cell must remain saying "please select" OR "/". This means that data is missing. This could be because a) the information is not available OR b) the question does not apply to the project. In the former case, please select the most disadvantageous answer; in the latter, the most advantageous answer.
- ▶ **Should you experience any difficulty using the tool or anything wrong with it, please enter a comment on worksheet 10 of the whole tool.**

→ **4: Check whether the TARGET achievement level has been properly calculated for each unit AND for the OVERALL TARGET.**

## 3 COLLECTING THE NECESSARY INFORMATION PRIOR TO DATA ENTRY

### 3.1 WHAT INFORMATION NEEDS TO BE COLLECTED PRIOR TO DATA ENTRY?

The information necessary for preparing data entry in the materials worksheet "1 - Company building", "2 - Company plot" and "3 - Business park" are:

→ **on the scale of the company building:** the types of surfaces - A detailed description of the surfaces looked at is available in the tool and can be visualised by 'mousing over' the cells concerned.

Building	
Ground floor surface	
area: Basement	
surface area: Surface	
area of 1st floor:	
Surface area of 1st	0.00 m <sup>2</sup>
floor: Surface area of	
1st floor:	

0.00 m <sup>2</sup>	<b>of the façade (including windows)</b>	0.00 m <sup>2</sup>
0.00 m <sup>2</sup>	<b>Surface area of windows:</b>	0.00 m <sup>2</sup>
0.00 m <sup>2</sup>	<b>Surface area of the ceilings:</b>	0.00 m <sup>2</sup>
0.00 m <sup>2</sup>	<b>Surface area of the shear walls:</b>	0.00 m <sup>2</sup>
0.00 m <sup>2</sup>		0.00 m <sup>2</sup>

**+** Identification of the main materials and construction techniques

→ **On the scale of the company plot:** the types of outside surfaces - A detailed description of the surfaces looked at is available in the tool and can be visualised by 'mousing over' the cells concerned.

Site development			
<b>Areas devoted to roads</b>		<b>Private parking areas</b>	
Length	0.00 m		0.00 m <sup>2</sup>
Width	0.00 m	<b>Outside storage areas.</b>	
Total road area (for cars)	0.00 m		0.00 m <sup>2</sup>
<b>Area of cycle tracks</b>		<b>Vehicle traffic areas (other than car parks and storage)</b>	
Length	0.00 m		0.00 m <sup>2</sup>
Width	0.00 m	<b>Private green areas</b>	
Total area: cycle paths	0.00 m		0.00 m <sup>2</sup>
<b>Area of footpaths</b>		<b>Undeveloped areas</b>	
Length	0.00 m		0.00 m <sup>2</sup>
Width	0.00 m	<b>Size of the plot without buildings</b>	
Total area: footpaths	0.00 m		0.00 m <sup>2</sup>
		<b>Length of the plot's perimeter</b>	0.00 m

+ Identification of the main materials and construction techniques

→ **On the scale of the business park:** the types of outside surfaces - A detailed description of the surfaces looked at is available in the tool and can be visualised by 'mousing over' the cells concerned.

Site development			
<b>Areas devoted to roads</b>		<b>Communal parking areas</b>	
Length	0.00 m		0.00 m <sup>2</sup>
Width	0.00 m	<b>Collective outside storage areas</b>	
Total road area (for cars)	0.00 m		0.00 m <sup>2</sup>
<b>Total area of cycle tracks (if in addition to roads)</b>		<b>Communal green areas</b>	
Length	0.00 m		0.00 m <sup>2</sup>
Width	0.00 m	<b>Undeveloped communal areas</b>	
Total area: cycle tracks	0.00 m		0.00 m <sup>2</sup>
<b>Area of footpaths</b>		<b>Business park perimeter - communal areas</b>	
Length			0.00 m
Width	0.00 m		
Total area: footpaths	0.00 m		
	0.00 m		

+ Identification of the main materials and construction techniques

#### 4 CONTACT

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